UNIT TERMINAL OBJECTIVE

5-5 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an allergic or anaphylactic reaction.

COGNITIVE OBJECTIVES

At the completion of this unit, the paramedic student will be able to:

5-5.1 Define allergic reaction. (C-1)
5-5.2 Define anaphylaxis. (C-1)
5-5.3 Describe the incidence, morbidity and mortality of anaphylaxis. (C-1)
5-5.4 Identify the risk factors most predisposing to anaphylaxis. (C-1)
5-5.5 Discuss the anatomy and physiology of the organs and structures related to anaphylaxis. (C-1)
5-5.6 Describe the prevention of anaphylaxis and appropriate patient education. (C-1)
5-5.7 Discuss the pathophysiology of allergy and anaphylaxis. (C-1)
5-5.8 Describe the common methods of entry of substances into the body. (C-1)
5-5.9 Define natural and acquired immunity. (C-1)
5-5.10 Define antigens and antibodies. (C-1)
5-5.11 List common antigens most frequently associated with anaphylaxis. (C-1)
5-5.12 Discuss the formation of antibodies in the body. (C-1)
5-5.13 Describe physical manifestations in anaphylaxis. (C-1)
5-5.14 Differentiate manifestations of an allergic reaction from anaphylaxis. (C-3)
5-5.15 Recognize the signs and symptoms related to anaphylaxis. (C-1)
5-5.16 Differentiate among the various treatment and pharmacological interventions used in the management of anaphylaxis. (C-3)
5-5.17 Integrate the pathophysiological principles of the patient with anaphylaxis. (C-3)
5-5.18 Correlate abnormal findings in assessment with the clinical significance in the patient with anaphylaxis. (C-3)
5-5.19 Develop a treatment plan based on field impression in the patient with allergic reaction and anaphylaxis. (C-3)

AFFECTIVE OBJECTIVES

None identified for this unit.

PSYCHOMOTOR OBJECTIVES

None identified for this unit.

DECLARATIVE

I. Introduction
- A. Epidemiology
  - 1. Incidence
  - 2. Morbidity/ mortality
  - 3. Risk factors
  - 4. Prevention
- B. Anatomy
  - 1. Review of cardiovascular system
  - 2. Review of respiratory system
  - 3. Review of nervous system
  - 4. Review of gastrointestinal system
- C. Physiology
  - 1. Antigens
  - 2. Antibodies
    - a. IgE
- D. Terminology
  - 1. Allergic reaction
  - 2. Anaphylaxis

II. Pathophysiology
- A. Allergen
- B. Routes of entry
  - 1. Oral ingestion
  - 2. Injected/ envenomation
  - 3. Inhaled
  - 4. Topical
- C. Common allergens
  - 1. Drugs
  - 2. Insects
  - 3. Foods
  - 4. Animals
  - 5. Other
- D. Allergic response
  - 1. Histamine or histamine-like substance release
  - 2. Biphasic response
    - a. Acute reaction
    - b. Delayed reaction
  - 3. Immunity
  - 4. Sensitivity
  - 5. Hypersensitivity
- E. Urticaria
  - 1. Redness of skin
- F. Angioneurotic
  - 1. Swelling/ edema of the skin
- G. Anaphylactic shock
  - 1. Cardiovascular system

2. Respiratory system
3. Gastrointestinal system
4. Nervous system

III. Assessment findings
- A. Not all signs and symptoms are present in every case
- B. History
  1. Previous exposure
  2. Previous experience to exposure
  3. Onset of symptoms
  4. Dyspnea
- C. Level of consciousness
  1. Unable to speak
  2. Restless
  3. Decreased level of consciousness
  4. Unresponsive
- D. Upper airway
  1. Hoarseness
  2. Stridor
  3. Pharyngeal edema/ spasm
- E. Lower airway
  1. Tachypnea
  2. Hypoventilation
  3. Labored - accessory muscle use
  4. Abnormal retractions
  5. Prolonged expirations
  6. Wheezes
  7. Diminished lung sounds
- F. Skin
  1. Redness
  2. Rashes
  3. Edema
  4. Moisture
  5. Itching
  6. Urticaria
  7. Pallor
  8. Cyanotic
- G. Vital signs
  1. Tachycardia
  2. Hypotension
- H. Gastrointestinal
  1. Abnormal crampings
  2. Nausea/ vomiting
  3. Diarrhea
- I. Assessment tools
  1. Cardiac monitor
  2. Pulse oximetry low
  3. End tidal CO_2 high

IV. Management of anaphylaxis
- A. Remove offending agent (i.e. remove stinger)
- B. Airway and ventilation
  1. Positioning
  2. Oxygen
  3. Assist ventilation
  4. Advanced airway
- C. Circulation
  1. Venous access
  2. Fluid resuscitation
- D. Pharmacological
  1. Oxygen
  2. Epinephrine - main stay of treatment
     a. Bronchodilator
     b. Decrease vascular permeability
  3. Antihistamine
  4. Antiinflammatory/ immunosuppressant
  5. Vasopressor
- E. Psychological support
- F. Transport considerations

V. Management of allergic reaction
- A. Without dyspnea
  1. Antihistamine
- B. With dyspnea
  1. Oxygen
  2. Subcutaneous epinephrine
  3. Antihistamine

VI. Patient Education